



Project Abstract

Interoperability Strategies for Scientific Cyberinfrastructure: A Comparative Study NSF 0433369

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This project is a comparative study of interoperability strategies within three contemporary cyberinfrastructures. Our methods include ethnographic, interview, and content data analysis to provide a situated social and organizational comparison of three scientific projects employing distinct infrastructures and deploying approaches to achieving data interoperability.

The three projects are:

1. GEON (<http://www.geongrid.org>), a cyberinfrastructure for the US geo-sciences aimed at providing scientific data and resource sharing services to a broad range of disciplines to ensure a more integrated picture of earth processes.
2. LTER (<http://lternet.edu/>), a federated network of biome sites developing an information infrastructure that aims at enabling inter-disciplinary collaboration and preserving data for the long-term in the ecological sciences.
3. Ocean Informatics, nascent initiative for the ocean sciences based at UCSD Scripps Institution of Oceanography that aims at sharing scientific data using a collaborative design environment.

As the new scientific cyberinfrastructure is emerging, a central question being posed is how to share data across multiple distributed organizational and social contexts. While there have been a wealth of suggestions for technical fixes for this pressing concern (particularly important since some of the great political questions of our day, such as preserving biodiversity and developing a sustainable relationship with our environment pivot on the ability to federate data across organizational and disciplinary contexts), there has been little study - and no comparative study - of the organizational and social dimensions of differing interoperability strategies.

Our working hypothesis, drawing on research in the field of social informatics over the past fifteen years, is that the creation of a common shared data infrastructure entails complex negotiations relating to the relative institutional weight of the different actors (institutions have a range of motives for subscribing or not to interoperability strategies), the nature of their disciplinary organization (in particular reward structures; openness to interdisciplinary work; history of use of large datasets) and the nature of their domain work (degree of commitment to long-term data storage and re-use; decay rate of data over time; need to draw on large federate datasets).

Through this study, we develop a grounded understanding of the organizational complexity producing shared scientific cyberinfrastructure.



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Project Website

<http://interoperability.ucsd.edu/>